

REGISTERED

# PATENT SPECIFICATION

DRAWINGS ATTACHED

1.019.077

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Date of Application and filing Complete Specification: Nov. 17, 1962.  
No. 43966/62.

Application made in Italy (No. 22615) on Dec. 16, 1961.  
(Patent of Addition to No. 1,011,742 dated Sept. 25, 1962).

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Index at acceptance:—F4 V (B1F, B2A, B2B)

Int. Cl.:—F 24 f

## COMPLETE SPECIFICATION

### Improvements in or relating to Air Conditioning Units

#### ERRATUM

SPECIFICATION No. 1,019,077  
Amendment No. 1

Page 1, Heading, Date of Application and  
Complete Specification, for "Nov. 17,  
1962" read "Nov. 21, 1962"

THE PATENT OFFICE  
14th July 1966

- the inlet chamber portion, and at least one primary air delivery conduit in communication with the supply conduit and having nozzles extending into the outlet chamber portion so that air discharged through the nozzles from the delivery conduit will draw secondary air through the inlet means into the inlet chamber portion and then through the heat exchange means into the discharged air for passage therewith through the outlet means, the construction being such that the dimension of the unit in the direction at right angles to the side of the enclosure containing the inlet means is smaller than the dimensions of the unit at right angles to said direction. Such a unit will be referred to herein as "an air conditioning unit of the character set forth".
- According to the present invention there is provided an air conditioning unit of the character set forth wherein the outlet means are such as to direct the air from the outlet chamber portion in a direction diverging from the direction of entry of secondary air into provided with two apertures 1<sup>1</sup>, both covered by a V-shaped plate 2 held adjustably in position by a screw 3 which enables the quantity of air flowing from said apertures 1<sup>1</sup> to be regulated. Connected to this conduit 1 and communicating therewith through the apertures 1<sup>1</sup> are two delivery conduits 5 each having a right-angled bend leading to a portion extending parallel to the supply conduit and provided with nozzles 6 from which air is discharged into two outlet or induction chambers 7. These chambers 7 are each defined internally of the unit by a heat exchanger coil 13 and are provided with an outlet 15 for joining to the line (not shown) carrying conditioned air to a desired outlet grille or grilles. Secondary air comes from a chamber 11 through filtering walls 12 to the chambers 7, whilst also passing through the coils 13 for heating or cooling. The heat exchanger coils also partly define the chamber 11 which is bounded at one side by a grille 8 for the inlet of the secondary air. This grille 8 is

in that side of the unit adjacent the two opposite sides containing the outlets 15. Behind grille 8 there is fitted a double damper arrangement 10 comprising two pivotally mounted members which can be operated by means of a knob 9. A knob 21 operates a valve controlling the flow of heating or cooling fluid in the heat exchanger coils 13. In the case of a number of units arranged in series, connectors 24<sup>1</sup> (Fig. 4) will connect the conduits 1.

From the account given hereinabove the working of the unit will be apparent. The primary air coming from a central air conditioner is introduced into the unit by means of the supply conduit 1 and, passing through the apertures 1<sup>1</sup>, feeds the delivery conduits 5. By means of V-shaped plate 2, or other equivalent means, this quantity of air is regulated; and it can be independently regulated for the two conduits 5 so as to send into the two outlets 15 air having different thermal and hygrometric characteristics.

The primary air conduit 1 is incorporated in the chamber 11, and its triangular cross-sectional shape provides surfaces in the chamber 11 for deflecting the flow of secondary air towards filtering walls 12. The space taken up by the unit in a direction at right angles to the grille 8 is found to be particularly small. In particular, the dimension extending in the direction at right angles to the grille is less than the dimensions at right angles to said direction.

One specific advantage of the unit shown, here, and the units of the Parent Patent, is that by simply removing grille 8, access can be had to all the adjusting means. Conse-

quently, it is easy to adapt the unit to a wide variety of requirements; for example, it is possible to vary the proportion of primary air to secondary air, and it is also possible to vary this proportion differently in the two outlets so as to obtain an asymmetrical air distribution when operating conditions make this advisable; again, it is possible not only to vary the heating power of coils 13 but also to make one coil different from the other so as to distribute the heat or the cooling in the desired manner and not only symmetrically. It should also be noted that the unit can be completed away from site, and requires very simple fitting operations.

#### WHAT WE CLAIM IS:—

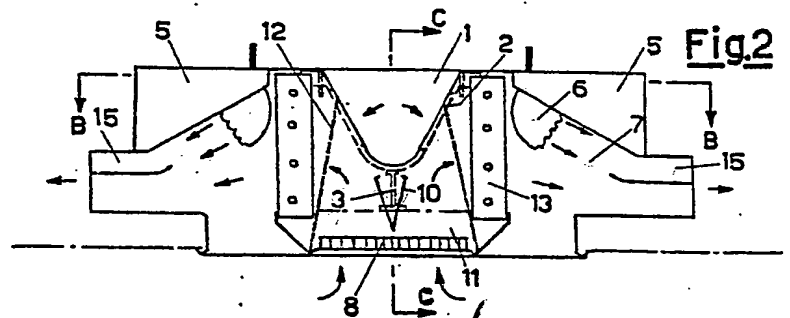
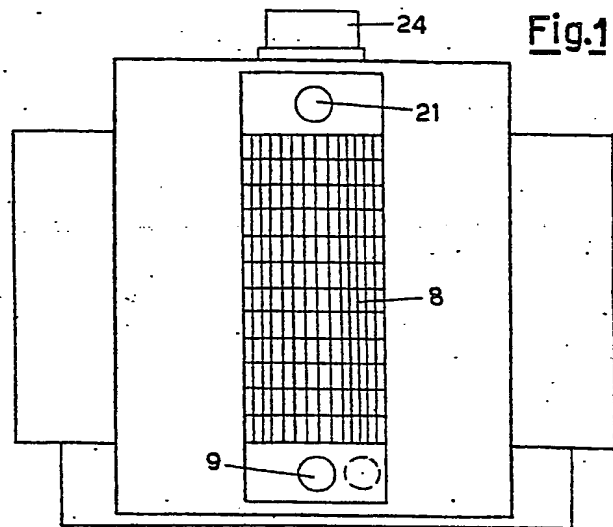
1. An air conditioning unit of the character set forth wherein the outlet means are such as to direct the air from the outlet chamber portion in a direction diverging from the direction of entry of secondary air into the inlet means and said outlet means are disposed in a side of the enclosure adjacent the side containing the inlet means.

2. A unit as in claim 1, wherein there are two outlet chamber portions defined in the enclosure, by the heat exchange means, each such portion having a respective outlet mouth in a respective side of the enclosure adjacent the side containing the inlet means.

3. An air conditioning unit substantially as hereinbefore described with reference to the accompanying drawings.

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dampers 10  
hollow 13

Fig.1

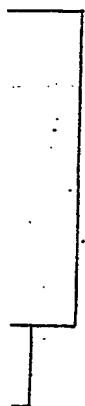


Fig.2

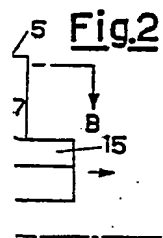


Fig.3

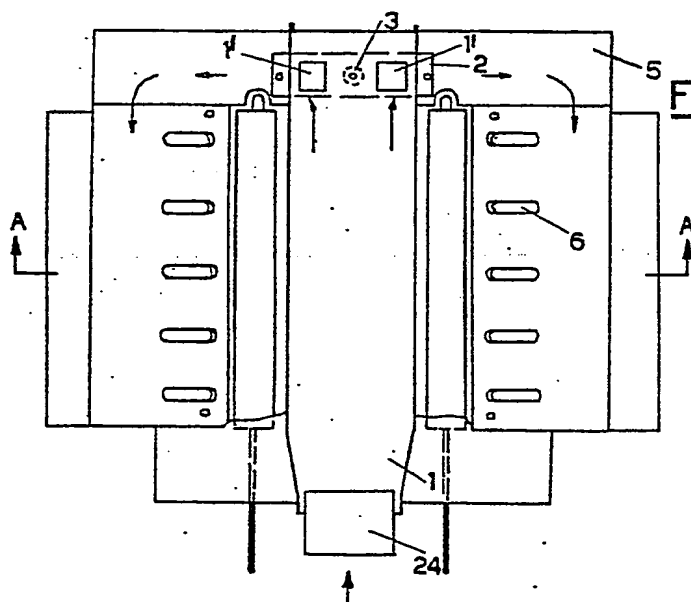
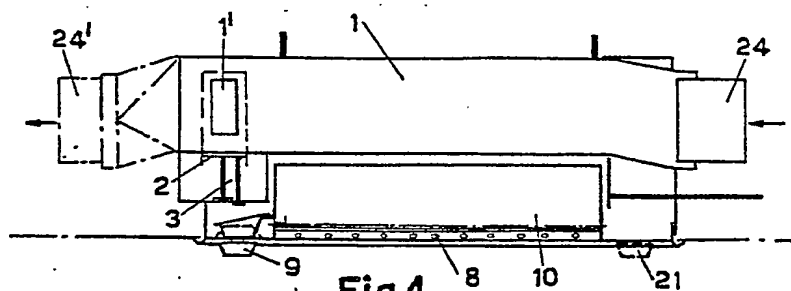
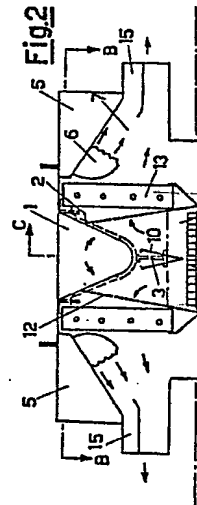
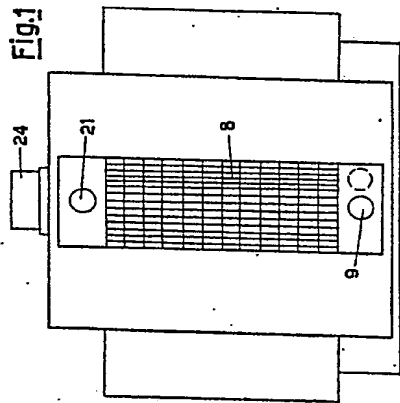
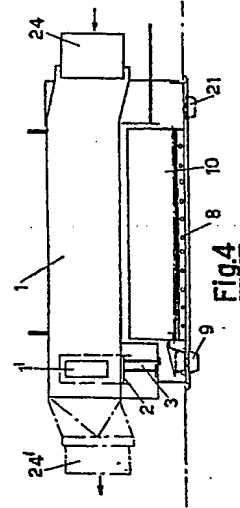
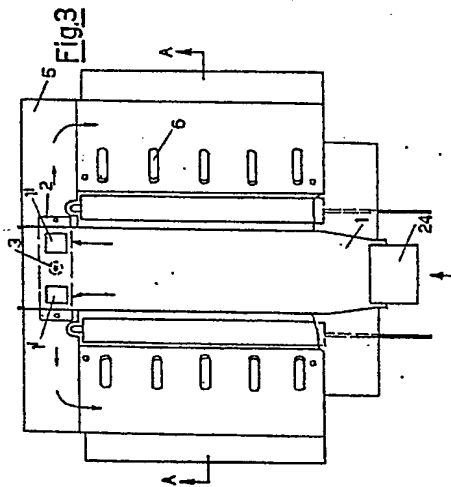


Fig.4



1019077 COMPLETE SPECIFICATION  
 2 SHEETS This drawing is a reproduction of  
 the Original on a reduced scale  
 Sheets 1 & 2



*double coils  
 secondary air  
 damper*